

Appl. No. 10/650,428
Amdt. dated June 16, 2005
Reply to Office Action of 3/17/2005

Docket No. A01420

REMARKS/ARGUMENTS

Claims 1-10 are pending in this application. Claims 6-9 are withdrawn in response to a restriction requirement mailed 2/18/2005.

Amendments: Lack of New Matter

Applicant submits that the forgoing claim amendments do not introduce new matter into the present application. The amount of silane pendant groups is recited in the present specification on p. 10, line 1.

Claim 1 over Fromwiller

In the above-identified Office Action the Examiner rejected claims 1-5 and 10 under 35 USC §102(b) as being anticipated by US 5,916,964 ("Fromwiller"). Fromwiller discloses a reactive hot melt adhesive that comprises certain polyols, an organic polyisocyanate, and a silane (Abstract).

Applicant respectfully submits that claim 1 is novel over Fromwiller. One clear distinction between the compositions taught by Fromwiller and those recited in present claim 1 is the nature of the silane functional compounds.

Fromwiller defines his silanes as "ethylenically unsaturated silanes which will participate directly in the reaction by free-radical polymerization and which do not contain active hydrogen" (col. 2, lines 65-67). Also, Fromwiller presents a list of "representative commercially available silanes of this type" (col. 3, lines 1-15).

Applicant submits that the silane compounds taught by Fromwiller are different from the silane-functional polyolefins recited in currently amended claim 1. The differences, broadly stated (and explained in greater detail herein below), are as follows:

- None of the compounds described by Fromwiller are, themselves, silane-functional polyolefins.

Appl. No. 10/650,428
Amdt. dated June 16, 2005
Reply to Office Action of 3/17/2005

Docket No. A01420

- If any of the compounds described by Fromwiller do polymerize, none of the resulting polymers will be a silane-functional polyolefin of the type recited in currently amended claim 1.

The silane compounds described by Fromwiller consist of the category "ethylenically unsaturated silanes" (col. 2, line 65) and the various listed examples (col. 3, lines 1-15). Fromwiller describes his silanes as capable of "free radical polymerization" (col. 2, lines 66-67), and so the category clearly is made up of non-polymeric materials. Further, the items in the list of representative silanes are all non-polymeric. Thus, the silane compounds described by Fromwiller are themselves not any kind of polymer and thus are not silane-functional polyolefins.

Fromwiller discloses that his silanes undergo "free radical polymerization." The nature of any resulting polymer can be seen from the compositions of the representative silane compounds disclosed by Fromwiller. One group of Fromwiller's silane compounds are allyl silane compounds (allyltriethoxysilane and allyltrimethoxysilane). If allyltrimethoxysilane is considered, the molecular weight of the allyl radical is 37 dalton, and the molecular weight of the trimethoxysilane radical is 121 dalton (28 dalton for the silicon atom and three times 31 dalton for the methoxy groups), so the weight percent of the silane group in the compound is approximately 77%. If allyltriethoxysilane is considered, it is apparent that the ethyl groups are heavier than methyl groups, so the weight percentage of silane groups will be higher than 77%. Indeed, if a hypothetical allyl silane compound were considered in which the silicon atom were unsubstituted, the silane group (i.e., the bare silicon atom) would constitute 45% of the compound by weight. Thus, if any allyl silane compound or mixture thereof were polymerized, the polymer would also have at least 45% silane groups by weight.

Another group of Fromwiller's silane compounds are vinyl silane compounds. Because the vinyl group is smaller than the allyl group, the weight percentage of the silane group in any vinyl silane compound will be greater than the weight percentage of the silane group in the corresponding allyl silane compound, which, as described herein above, is always at least 45%. Thus, the weight of silane group in any vinyl silane compound must be greater than 45% of the weight of the compound. Therefore, any

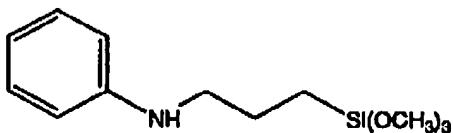
Appl. No. 10/650,428
 Amdt. dated June 16, 2005
 Reply to Office Action of 3/17/2005

Docket No. A01420

polymer resulting from polymerization of vinyl silane compounds, allyl silane compounds, or mixture thereof, will have greater than 45% silane groups by weight.

Additionally, one could consider a hypothetical alkene with a silane atom attached (an "alkenyl silane"). Fromwiller makes no teachings regarding alkenyl silanes as a category, but such compounds are considered hypothetically herein. Even if the silicon atom were completely unsubstituted, the alkene would have to have 18 carbon atoms in order for the silane groups to constitute 10% or less of the alkenyl compounds. A person of ordinary skill in the art would not consider such an 18-carbon compound to fall within the teaching of Fromwiller, who makes no general teaching of alkenyl silanes, and who discloses only vinyl silanes and allyl silanes (i.e., 2-carbon and 3-carbon alkenyl silanes). Fromwiller makes no teaching or suggestion toward using alkenyl silanes with more than 3 carbon atoms.

Fromwiller's list of disclosed silanes also includes various "other" silane compounds (i.e., those that are neither vinyl silanes nor allyl silanes). Some of these "other" silanes are acryl silanes or methacryl silanes. Were any of these to polymerize, the resulting polymer would be an acrylic polymer, and acrylic polymers are a distinct class of compositions from polyolefins. Likewise, none of the remaining "other" silane compounds listed by Fromwiller is capable of forming a polyolefin. For example, phenylaminopropyl-trimethoxysilane, which has the structure



clearly lacks the vinyl group necessary for formation of a polyolefin.

Fromwiller teaches that Silquest™ Y-9669 is "a particularly suitable silane" (col 3, lines 13-15). Silquest™ Y-9669 is known to be phenylaminopropyl-trimethoxysilane, as taught, for example, in US 6,350,799 (at col. 3, lines 5-6). Thus, as discussed herein above, Silquest™ Y-9669 is not capable of forming a polyolefin.

In one instance, Fromwiller mentions "Silquest™ Y-9689" (col. 4, line 48). In contrast to Silquest™ Y-9669, there is no readily apparent public record of any product

Appl. No. 10/650,428
Amdt. dated June 16, 2005
Reply to Office Action of 3/17/2005

Docket No. A01420

by the name Silquest™ Y-9689. For example, the existence of Silquest™ Y-9669 is easily discovered in public disclosures by various companies, such as, for example GE Silicones and OSi Specialties. Many US Patents mention Silquest™ Y-9669. In contrast, these sources of public disclosure make no mention of any "Silquest™ Y-9689."

Applicant notes that Fromwiller mentions "Silquest™ Y-9689" in the context of demonstrating the effect of "varying amounts of silane." Fromwiller makes no mention of any difference between "Silquest™ Y-9689" and any other silane already disclosed by Fromwiller.

Applicant submits that, whatever the details of the composition of "Silquest™ Y-9689," neither Fromwiller nor the public record indicate that "Silquest™ Y-9689" falls outside of the general teachings of Fromwiller regarding silane compounds. Consequently, Applicant submits that the mention of "Silquest™ Y-9689" does not constitute a disclosure or suggestion by Fromwiller toward silane-functional polyolefins with 10% or less by weight silane groups.

In sum, all of the silane compounds disclosed by Fromwiller fall into one or more of the following categories: they are not polymers; they are not polyolefins; and/or they have silane groups in amounts of 45% by weight or higher. In contrast, the silane-functional polyolefin recited in currently amended claim 1 has silane pendant groups in the amount of 10% or less by weight. Thus, Applicant asserts that the teachings of Fromwiller do not include the silane-functional polyolefins recited in currently amended claim 1. Consequently, Applicant submits that claim 1 is novel over Fromwiller.

Claim 10 over Fromwiller

Applicant submits that currently amended claim 10 is novel over Fromwiller for the same reasons set forth herein above regarding currently amended claim 1.

Appl. No. 10/650,428
Amdt. dated June 16, 2005
Reply to Office Action of 3/17/2005

Docket No. A01420

Dependent claims 2-5 over Fromwiller

Applicant submits that present claims 2-5 are also novel over Fromwiller, because they are dependent on currently amended claim 1, which Applicant submits is novel over Fromwiller, as discussed herein above.

Claim 4 over Fromwiller

Applicant submits that the subject matter of claim 4 provides an additional reason why claim 4 is novel over Fromwiller. Claim 4 recites compositions that are made using two different types of silane compounds: silane-functional polyolefin and silane adhesion promoters. As set forth in the present specification (p. 13, line 10 to p. 14, line 17), silane adhesion promoters are known in the art to be non-polymeric, while silane-functional polyolefins are, by definition, polymeric. Thus the compositions recited in claim 4 are made from both of two distinct types of silane compounds (i.e., polymeric and non-polymeric). Such a combination of different-type silanes is not taught or suggested by Fromwiller. Therefore, Applicant submits that the combination of two different types of silanes provides an additional reason why claim 4 is novel over Fromwiller.

Conclusion

In view of the foregoing amendments and arguments, Applicant respectfully requests the Examiner to reexamine the claimed subject matter, to withdraw the rejections of the claimed subject matter and to allow claims 1-5 and 10 at this time. If, however, there remain any open issues which the Examiner believes can be resolved by a telephone call, the Examiner is cordially invited to contact the undersigned agent.

No fees are believed to be due in connection with the submission of this amendment; however, if any such fees, including petition or extension fees, are due, the

Appl. No. 10/650,428
Amdt. dated June 16, 2005
Reply to Office Action of 3/17/2005

Docket No. A01420

Commissioner is hereby authorized to charge them, as well as to credit any overpayments, to Deposit Account No. 18-1850.

Respectfully Submitted,



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